



PATENT ABSTRACTS OF JAPAN

(11) Publication number: **11069621 A**(43) Date of publication of application: **09 . 03 . 99**

(51) Int. Cl

H02J 1/00
H01G 9/155
H01G 9/28
H01M 6/16

(21) Application number: **09246108**(22) Date of filing: **26 . 08 . 97**(71) Applicant: **HITACHI MAXELL LTD**

(72) Inventor: **SAKATA TADASHI**
SANO KENICHI
SEKIDO SHINTAROU

(54) **COMBINING POWER SUPPLY ELEMENT OF
 NON-AQUEOUS ELECTROLYTE SOLUTION
 PRIMARY BATTERY AND ELECTRIC
 DOUBLE-LAYER CAPACITOR**

charging/discharging characteristic of the electric
 double-layer capacitor 2 in order to improve heavy load
 discharging characteristic.

COPYRIGHT: (C)1999,JPO

(57) Abstract:

PROBLEM TO BE SOLVED: To improve heavy load discharging characteristic of a non-aqueous electrolyte solution primary battery, by connecting and integrating in parallel a non-aqueous electrolyte solution primary battery with an electric double-layer capacitor, and then providing two terminals of positive pole and negative pole as in the case of an ordinary battery.

SOLUTION: A side wall section and a bottom section of a battery case 1a of a cylindrical non-aqueous electrolyte solution primary battery 1 are defined as a negative terminal, and a positive terminal 1b is provided via an insulating layer consisting of glass or the like to a battery cover welded to the aperture end section of a battery case 1a. At the bottom section of the battery case 1a of the non-aqueous electrolyte solution primary battery 1, an electric double-layer capacitor 2 using a couple of button type elements is provided under the condition that these elements are connected with a lead wire. As a result, deterioration of heavy load discharging characteristic of the non-aqueous electrolyte solution primary battery 1 is compensated by the excellent quick

